



SEQUENCE LISTING

<110> HONG, GUOFAN

HUANG, WEI-HUA

<120> DNA POLYMERASE HAVING ABILITY TO REDUCE INNATE

SELECTIVE DISCRIMINATION AGAINST FLUORESCENT

DYE-LABELED DIDEOXYNUCLEOTIDES

<130> hongsequencelisting

<140> 09/157,397

<141> 1998-09-21

<150> 08/544,643

<151> 1995-10-18

<150> 08/642,684

<151> 1996-05-03

<160> 11

<170> PatentIn Ver. 2.0 - beta

<210> 1

<211> 1764

<212> DNA

<213> Bacillus stearothermophilus

<400> 1

gccgaagggg agaaaccgct tgaggagatg gagtttgcca tcgttgacgt cattaccgaa 60  
gagatgcttg ccgacaaggc agcgcttgtc gttgaggtga tggaagaaaa ctaccacgat 120  
gccccgattg tcggaatcgc actagtgaac gagcatgggc gattttttat ggcgccggag 180  
accgcgctgg ctgattcgca attttttagca tggcttgccg atgaaacgaa gaaaaaaagc 240  
atgtttgacg ccaagcgggc agtcgcttgcc ttaaagtgga aaggaattga gcttcgcggc 300  
gtcgcccttg atttattgct cgtgcctat ttgctcaatc cggctdaaga tgccggcgat 360  
atcgctgcgg tggcgaaaat gaaacaatat gaagcgggtgc ggtcggatga agcgggtctat 420  
ggcaaaggcg tcaagcggtc gctgccggac gaacagacgc ttgctgagca tctcgttcgc 480

aaagcggcag ccatttgggc gcttgagcag ccgtttatgg acgatttgcg gaacaacgaa 540  
caagatcaat tattaacgaa gcttgagcac gcgctggcgg cgattttggc tgaaatggaa 600  
tactgggg tgaacgtgga taaaagcgg cttgaacaga tgggttcgga gctcgccgaa 660  
caactgcgtg ccacgagca gcgcatttac gagctagccg gccaaagatt caacattaac 720  
tcacaaaaac agctcggagt cattttattt gaaaagctgc agctaccggt gctgaagaag 780  
acgaaaacag gctattcgac ttcggctgat gtgcttgaga agcttgcgcc gcacatgaa 840  
atcgtcgaaa acattttgca ttaccgccag cttggcaaac tgcaatcaac gtatattgaa 900  
ggattgttga aagttgtgcg ccctgatacc ggcaaagtgc atacgatgtt caaccaagcg 960  
ctgacgcaaa ctgggcggct cagctcggcc gagccgaact tgcaaaacat tccgattcgg 1020  
ctcgaagagg ggcggaaaat ccgccaagcg ttcgtcccggt cagagccgga ctggctcatt 1080  
ttcgccgccg attactcaca aattgaattg cgcgtcctcg cccatatcgc cgatgacgac 1140  
aatctaattg aagcgttcca acgcgatttg gatattcaca caaaaacggc gatggacatt 1200  
ttccagttga gcgaagagga agtcacggcc aacatgcgcc gccaggcaaa ggccgttaac 1260  
ttcggtatcg ttacggaat tagcgattac ggattggcgc aaaacttgaa cattacgcgc 1320  
aaagaagctg ccgaatttat cgaacgttac ttcgccagct ttccgggcgt aaagcagtat 1380  
atggaaaaca tagtgcaaga agcgaaacag aaaggatatg tgacaacgct gttgcatcgg 1440  
cgccgctatt tgccatgat tacaagccgc aatttcaacg tccgcagttt tgcagagcgg 1500  
acggccatga acacgccaat tcaaggaagc gccgctgaca ttattaaaa agcgatgatt 1560  
gatttagcgg cacggctgaa agaagagcag cttcaggctc gtctttcgct gcaagtgcac 1620

gacgagctca ttttggaagc gccaaaagag gaaattgagc gattatgtga gcttggtccg 1680

gaagtgatgg agcaggccgt tacgctccgc gtgccgctga aagtcgacta ccattacggc 1740

aaacatggt atgatgcaa ataa 1764

<210> 2

<211> 587

<212> PRT

<213> Bacillus stearothermophilus

<400> 2

Ala Glu Gly Glu Lys Pro Leu Glu Glu Met Glu Phe Ala Ile Val Asp

1 5 10 15

Val Ile Thr Glu Glu Met Leu Ala Asp Lys Ala Ala Leu Val Val Glu

20 25 30

Val Met Glu Glu Asn Tyr His Asp Ala Pro Ile Val Gly Ile Ala Leu

35 40 45

Val Asn Glu His Gly Arg Phe Phe Met Arg Pro Glu Thr Ala Leu Ala

50

55

60

Asp Ser Gln Phe Leu Ala Trp Leu Ala Asp Glu Thr Lys Lys Lys Ser

65

70

75

80

Met Phe Asp Ala Lys Arg Ala Val Val Ala Leu Lys Trp Lys Gly Ile

85

90

95

Glu Leu Arg Gly Val Ala Phe Asp Leu Leu Leu Ala Ala Tyr Leu Leu

100

105

110

Asn Pro Ala Gln Asp Ala Gly Asp Ile Ala Ala Val Ala Lys Met Lys

115

120

125

Gln Tyr Glu Ala Val Arg Ser Asp Glu Ala Val Tyr Gly Lys Gly Val

130

135

140

Lys Arg Ser Leu Pro Asp Glu Gln Thr Leu Ala Glu His Leu Val Arg

574

145

150

155

160

ys Ala Ala Ala Ile Trp Ala Leu Glu Gln Pro Phe Met Asp Asp Leu

165

170

175

Arg Asn Asn Glu Gln Asp Gln Leu Leu Thr Lys Leu Glu His Ala Leu

180

185

190

Ala Ala Ile Leu Ala Glu Met Glu Phe Thr Gly Val Asn Val Asp Thr

195

200

205

Lys Arg Leu Glu Gln Met Gly Ser Glu Leu Ala Glu Gln Leu Arg Ala

210

215

220

Ile Glu Gln Arg Ile Tyr Glu Leu Ala Gly Gln Glu Phe Asn Ile Asn

225

230

235

240

Ser Pro Lys Gln Leu Gly Val Ile Leu Phe Glu Lys Leu Gln Leu Pro

245

250

255

625

Val Leu Lys Lys Thr Lys Thr Gly Tyr Ser Thr Ser Ala Asp Val Leu

260

265

270

Glu Lys Leu Ala Pro His His Glu Ile Val Glu Asn Ile Leu His Tyr

275

280

285

Arg Gln Leu Gly Lys Leu Gln Ser Thr Tyr Ile Glu Gly Leu Leu Lys

290

295

300

Val Val Arg Pro Asp Thr Gly Lys Val His Thr Met Phe Asn Gln Ala

305

310

315

320

Leu Thr Gln Thr Gly Arg Leu Ser Ser Ala Glu Pro Asn Leu Gln Asn

325

330

335

Ile Pro Ile Arg Leu Glu Glu Gly Arg Lys Ile Arg Gln Ala Phe Val

340

345

350

Pro Ser Glu Pro Asp Trp Leu Ile Phe Ala Ala Asp Tyr Ser Gln Ile

355

360

365

Glu Leu Arg Val Leu Ala His Ile Ala Asp Asp Asp Asn Leu Ile Glu

370

375

380

Ala Phe Gln Arg Asp Leu Asp Ile His Thr Lys Thr Ala Met Asp Ile

385

390

395

400

Phe Gln Leu Ser Glu Glu Glu Val Thr Ala Asn Met Arg Arg Gln Ala

405

410

415

Lys Ala Val Asn Phe Gly Ile Val Tyr Gly Ile Ser Asp Tyr Gly Leu

420

425

430

Ala Gln Asn Leu Asn Ile Thr Arg Lys Glu Ala Ala Glu Phe Ile Glu

435

440

445

Arg Tyr Phe Ala Ser Phe Pro Gly Val Lys Gln Tyr Met Glu Asn Ile



450

455

460

Val Gln Glu Ala Lys Gln Lys Gly Tyr Val Thr Thr Leu Leu His Arg

465

470

475

480

Arg Arg Tyr Leu Pro Asp Ile Thr Ser Arg Asn Phe Asn Val Arg Ser

485

490

495

Phe Ala Glu Arg Thr Ala Met Asn Thr Pro Ile Gln Gly Ser Ala Ala

500

505

510

Asp Ile Ile Lys Lys Ala Met Ile Asp Leu Ala Ala Arg Leu Lys Glu

515

520

525

Glu Gln Leu Gln Ala Arg Leu Leu Leu Gln Val His Asp Glu Leu Ile

530

535

540

Leu Glu Ala Pro Lys Glu Glu Ile Glu Arg Leu Cys Glu Leu Val Pro

545

550

555

560

Glu Val Met Glu Gln Ala Val Thr Leu Arg Val Pro Leu Lys Val Asp

565

570

575

Tyr His Tyr Gly Pro Thr Trp Tyr Asp Ala Lys

580

585

<210> 3

<211> 1764

<212> DNA

<213> *Bacillus stearothermophilus*

<400> 3

atggccgaag gggagaaacc gcttgaggag atggagtttg ccatcggtga cgtcattacc 60  
gaagagatgc ttgccgacaa ggcagcgctt gtcgttgagg tgatggaaga aaactaccac 120  
gatgccccga ttgtcggaat cgcactagtg aacgagcatg ggcgattttt tatgcgccccg 180  
gagaccgcgc tggttgattc gcaattttta gcatggcttg ccgatgaaac gaagaaaaaa 240  
agcatgtttg acgccaagcg ggcagtcggt gccttaaagt ggaaaggaat tgagcttcgc 300

ggcgtcgcct ttgatttatt gctcgtgcc tatttgctca atccggctca agatgccggc 360  
gatatcgctg cgggtggcgaa aatgaaacaa tatgaagcgg tgcggtcgga tgaagcggtc 420  
atggcaaag gcgtcaagcg gtcgctgccg gacgaacaga cgcttgctga gcattctggt 480  
cgcaaagcgg cagccatttg ggcgcttgag cagccgttta tggacgattt gcggaacaac 540  
gaacaagatc aattattaac gaagcttgag cagcgcgtgg cggcgatttt ggctgaaatg 600  
gaattcactg ggggtgaacgt ggatacaaag cggcttgaac agatgggttc ggagctcgcc 660  
gaacaactgc gtgccatcga gcagcgcatt tacgagctag ccggccaaga gttcaacatt 720  
aactcaccaa aacagctcgg agtcatttta tttgaaaagc tgcagctacc ggtgctgaag 780  
aagacgaaaa caggctattc gacttcggct gatgtgcttg agaagcttgc gccgcatcat 840  
gaaatcgctg aaaacatttt gcattaccgc cagcttggca aactgcaatc aacgtatatt 900  
gaaggattgt tgaaagttgt gcgccctgat accggcaaag tgcatacgat gttcaaccaa 960  
gcgctgacgc aaactgggcg gctcagctcg gccgagccga acttgdaaaa cattccgatt 1020  
cggacccccc tggggcgga aatccgcca gcgcttcgtcc cgtcagagcc ggactgggtc 1080  
attttcgccg ccgattactc acaaattgaa ttgcgcgtcc tcgccdatat cggcgatgac 1140  
gacaatctaa ttgaagcgtt ccaacgcgat ttggatattc acacaaaaac ggcgatggac 1200  
attttccagt tgagcgaaga ggaagtcacg gccaacatgc gccgccaaggc aaaggccgtt 1260  
aactacggta tcgtttacgg aattagcgat tacggattgg cgcaaaactt gaacattacg 1320  
cgcaaagaag ctgccgaatt tatcgaacgt tacttcgcca gctttccggg cgtaaagcag 1380  
tatatggaaa acatagtgc agaagcgaaa cagaaaggat atgtgacaac gctgttgcat 1440

cggcgccgct atttgccctga tattacaagc cgcaatttca acgtccgcag ttttgcagag 1500  
 cggacggcca tgaacacgcc aattcaagga agcgccgctg acattattaa aaaagcgatg 1560  
 ttgatttag cggcacggct gaaagaagag cagcttcagg ctgctctttt gctgcaagtg 1620  
 catgacgagc tcatttttggga agcgccaaaa gaggaattg agcgattatg tgagcttggt 1680  
 ccggaagtga tggagcaggc cgttacgctc cgcgtgccgc tgaaagtcga ctaccattac 1740  
 ggccaacat ggtatgatgc caaa 1764

<210> 4

<211> 588

<212> PRT

<213> Bacillus stearothermophilus

<400> 4

Met Ala Glu Gly Glu Lys Pro Leu Glu Glu Met Glu Phe Ala Ile Val

1

5

10

15

Asp Val Ile Thr Glu Glu Met Leu Ala Asp Lys Ala Ala Leu Val Val

20

25

30

Glu Val Met Glu Glu Asn Tyr His Asp Ala Pro Ile Val Gly Ile Ala

35

40

45

Leu Val Asn Glu His Gly Arg Phe Phe Met Arg Pro Glu Thr Ala Leu

50

55

60

Ala Asp Ser Gln Phe Leu Ala Trp Leu Ala Asp Glu Thr Lys Lys Lys

65

70

75

80 .

Ser Met Phe Asp Ala Lys Arg Ala Val Val Ala Leu Lys Trp Lys Gly

85

90

95

Ile Glu Leu Arg Gly Val Ala Phe Asp Leu Leu Leu Ala Ala Tyr Leu

100

105

110

Leu Asn Pro Ala Gln Asp Ala Gly Asp Ile Ala Ala Val Ala Lys Met

115

120

125

Lys Gln Tyr Glu Ala Val Arg Ser Asp Glu Ala Val Tyr Gly Lys Gly

130

135

140

Val Lys Arg Ser Leu Pro Asp Glu Gln Thr Leu Ala Glu His Leu Val

145

150

155

160

Arg Lys Ala Ala Ala Ile Trp Ala Leu Glu Gln Pro Phe Met Asp Asp

165

170

175

Leu Arg Asn Asn Glu Gln Asp Gln Leu Leu Thr Lys Leu Glu His Ala

180

185

190

Leu Ala Ala Ile Leu Ala Glu Met Glu Phe Thr Gly Val Asn Val Asp

195

200

205

Thr Lys Arg Leu Glu Gln Met Gly Ser Glu Leu Ala Glu Gln Leu Arg

210

215

220

Ala Ile Glu Gln Arg Ile Tyr Glu Leu Ala Gly Gln Glu Phe Asn Ile

225

230

235

240

1483

Asn Ser Pro Lys Gln Leu Gly Val Ile Leu Phe Glu Lys Leu Gln Leu

245

250

255

Pro Val Leu Lys Lys Thr Lys Thr Gly Tyr Ser Thr Ser Ala Asp Val

260

265

270

Leu Glu Lys Leu Ala Pro His His Glu Ile Val Glu Asn Ile Leu His

275

280

285

Tyr Arg Gln Leu Gly Lys Leu Gln Ser Thr Tyr Ile Glu Gly Leu Leu

290

295

300

Lys Val Val Arg Pro Asp Thr Gly Lys Val His Thr Met Phe Asn Gln

305

310

315

320

Ala Leu Thr Gln Thr Gly Arg Leu Ser Ser Ala Glu Pro Asn Leu Gln

325

330

335

Asn Ile Pro Ile Arg Thr Pro Leu Gly Arg Lys Ile Arg Gln Ala Phe

340

345

350

Val Pro Ser Glu Pro Asp Trp Leu Ile Phe Ala Ala Asp Tyr Ser Gln

355

360

365

Ile Glu Leu Arg Val Leu Ala His Ile Ala Asp Asp Asp Asn Leu Ile

370

375

380

Glu Ala Phe Gln Arg Asp Leu Asp Ile His Thr Lys Thr Ala Met Asp

385

390

395

400

Ile Phe Gln Leu Ser Glu Glu Glu Val Thr Ala Asn Met Arg Arg Gln

405

410

415

Ala Lys Ala Val Asn Tyr Gly Ile Val Tyr Gly Ile Ser Asp Tyr Gly

420

425

430

Leu Ala Gln Asn Leu Asn Ile Thr Arg Lys Glu Ala Ala Glu Phe Ile



435

440

445

Ile Arg Tyr Phe Ala Ser Phe Pro Gly Val Lys Gln Tyr Met Glu Asn

450

455

460

Ile Val Gln Glu Ala Lys Gln Lys Gly Tyr Val Thr Thr Leu Leu His

465

470

475

480

Arg Arg Arg Tyr Leu Pro Asp Ile Thr Ser Arg Asn Phe Asn Val Arg

485

490

495

Ser Phe Ala Glu Arg Thr Ala Met Asn Thr Pro Ile Gln Gly Ser Ala

500

505

510

Ala Asp Ile Ile Lys Lys Ala Met Ile Asp Leu Ala Ala Arg Leu Lys

515

520

525

Glu Glu Gln Leu Gln Ala Arg Leu Leu Leu Gln Val His Asp Glu Leu

530

535

540

Ile Leu Glu Ala Pro Lys Glu Glu Ile Glu Arg Leu Cys Glu Leu Val

15

550

555

560

Pro Glu Val Met Glu Gln Ala Val Thr Leu Arg Val Pro Leu Lys Val

565

570

575

Asp Tyr His Tyr Gly Pro Thr Trp Tyr Asp Ala Lys

580

585

<210> 5

<211> 17

<212> DNA

<213> Bacillus stearothermophilus

<400> 5

cattttgctg ccggtca

17

<210> 6

<211> 20

<212> DNA

<213> Bacillus stearothermophilus

<400> 6

gtaaaacgac ggccagtctt

20

<210> 7

<211> 20

<212> DNA

<213> Bacillus stearothermophilus

<400> 7

gtaaaacgac ggccagtcgg

20

<210> 8

<211> 20

<212> DNA

1988

<213> Bacillus stearothermophilus

100> 8

cattttgctg ccggtcagaa

20

<210> 9

<211> 26

<212> DNA

<213> Bacillus stearothermophilus

<400> 9

gccgттаact acggtatcgt ttacgg

26

<210> 10

<211> 36

<212> DNA

<213> Bacillus stearothermophilus

<400> 10

2089

cattccgatt cggacccac tggggcggaa aatccg

>210 11

<211> 24

<212> DNA

<213> Bacillus stearothermophilus

<400> 11

sssssstgta aaacgacggc cagt